ECE 2350 CIRCUIT ANALYSIS I

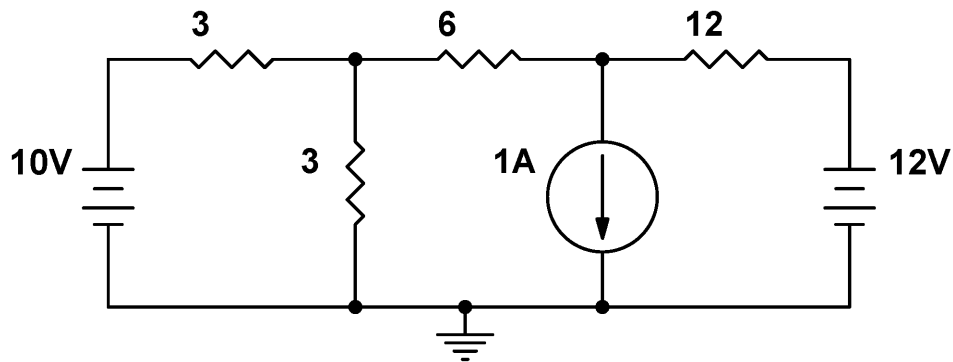**Homework 3**   **Professor Dunham**
**4 February 2020**   **Due: 11 February 2020**

Review Lecture Notes.

1. Use nodal analysis to find the voltage at each node in the circuit below. Be sure to indicate the name you assign to each node. Check your solution by showing that KCL holds at the ground node.


2. Use nodal analysis to find the voltage at each node in the circuit below. Be sure to indicate the name you assign to each node. Check your solution by showing that KCL holds at each node.
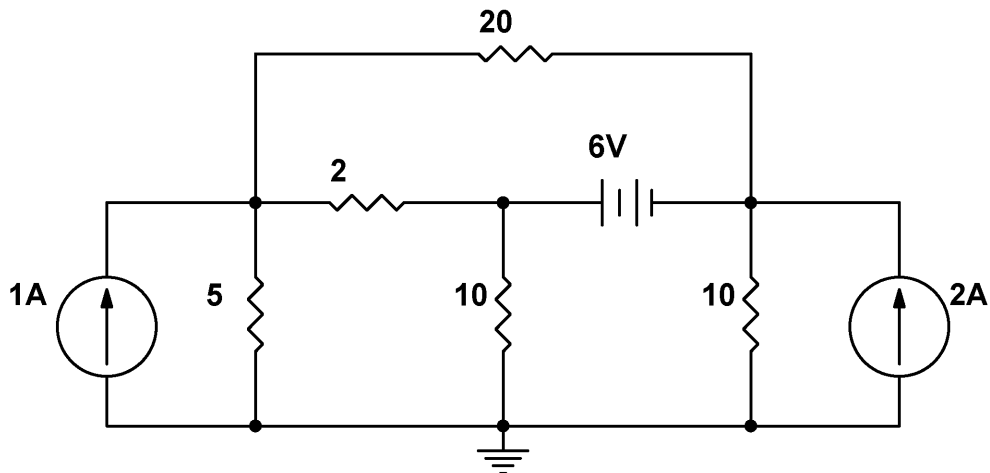
3. Consider the circuit below.

    (a) Use loop analysis to derive a system of linear equations that describe mesh currents in the circuit.

    (b) Use nodal analysis to derive a system of linear equations that describe nodal voltages in the circuit.

    (c) Solve one of the above systems of equations to determine all nodal voltages and mesh currents in the circuit.
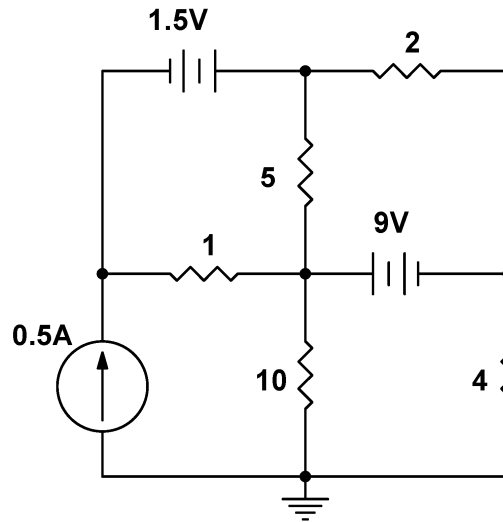
4. Find all the mesh currents and the nodal voltages in the circuit below.
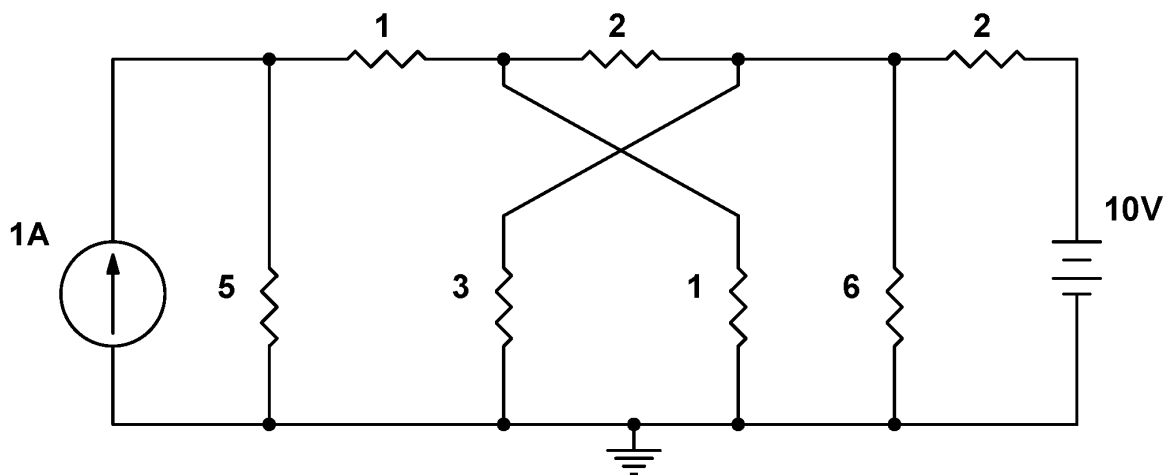
5. Use source transformations to simplify the circuit below into a single voltage source and a single resistor to find the current flowing through the 24V battery. Be sure to indicated the direction of the current flow.